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Perspectives on Medication-Related and Other Health Disparities Affecting Asian Americans, Native Hawaiians, and Other Pacific Islanders: A Qualitative Study

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Abstract

Background and Purpose: The present body of literature has little information regarding factors behind gaps in health status affecting Asian American, Native Hawaiian and Pacific Islander (AANHPI) communities, and methods to address them. We sought to examine pharmacists' and other health care professionals' perceptions of AANHPI health disparities and their ideas for solutions involving pharmacists, pharmacy schools, and the U.S. Food and Drug Administration (FDA).
Methods: In-depth individual interviews were conducted with ten academic pharmacists and four other health care professionals knowledgeable about AANHPI disparities, with a focus on medication-related disparities.
Results: Commonly identified factors behind disparities included poor communication, low socioeconomic status, cultural inhibitions creating a reluctance to seek care, and limited access to care. Suggested strategies for community pharmacists to reduce disparities included one-on-one care focused on outcomes, translated materials and translation services, and tracking adherence to medications. Participants suggested that colleges of pharmacy could continue community health events, encourage students to be culturally aware, and conduct health disparities research, and that the FDA could provide translated information, research funding, and requirements for greater ethnic diversity in clinical trials.
Conclusion: Experts believe that pharmacists have the potential to help close the health care gap for AANHPI populations.

Keywords: Asian American, Native Hawaiian and Other Pacific Islander, health disparity, medication adherence, qualitative research, pharmacist, perceptions, interview, FDA

Introduction

Asian Americans, Native Hawaiians, and Pacific Islanders (AANHPIs) are a rapidly growing portion of the population in the United States. Quantitative data are increasingly being generated documenting health disparities affecting AANHPIs in many areas including diabetes, hepatitis B, and tuberculosis (Moy, Sallis, & David, 2010; Weir, Tseng, Yen, & Caballero, 2009). AANHPIs have lower levels of physical activity, worse diets, higher tobacco use, and higher rates of obesity and chronic conditions (Moy, Sallis, & David, 2010). Life expectancies for Pacific Islanders are lower than white mainland populations (Moy, Sallis, & David, 2010). Compared to white mainland populations, AANHPI populations have lower health literacy (Moy, Sallis, & David, 2010). In a report analyzing trends in ethnic disparities in medical care, Flores and Lin reported, "[Asian and Pacific Islander] children have especially high odds of the [primary care physician] never spending enough time with the child, receiving no specialty care, and receiving no mental healthcare" (Flores & Lin, 2013). Native Hawaiians and Pacific Islanders have a greater prevalence of diabetes compared with non-Hispanic whites (Centers for Disease Control and Prevention, 2013).

Despite the growing body of literature documenting the disparity in health status between AANHPI (most of this conducted in Hawaii and the South Pacific), there is little information regarding reasons for these disparities and ways to address them (Harrigan, Ease, LeSaux, Millar, Kagihara, & Shoemaker, 2005; Hirano, 2012). While studies have been conducted examining interventions to improve medication adherence in minority populations, few have included AANHPIs, who are less likely to be included in clinical studies than persons of European descent (Manias & Willams, 2010; Dachs, 2008). Medication adherence is an important aspect of appropriate management of chronic disease and is correlated with health outcomes and mortality (Simpson, Eurich, Majumdar, Padwal, Tsuyuki, Varney, et al., 2006).

The 2010 US Census showed that 5.6% of Americans identified as Asian and 0.4% of Americans identified as NHPI, and that these populations grew more than four times faster and three times faster than the general US population, respectively. The state of Hawaii has a large number of AANHPI persons, where Asians represent over 50% of the population in Hawaii. Additionally, over 50% of NHPIs in the United States live in Hawaii and California (Census Briefs, 2010).

While quantitative studies are necessary to document health disparities, a qualitative approach is useful in examining issues of why these disparities exist and persist. Using a qualitative approach, issues can be examined in detail and in depth and data based on human experience that is obtained is powerful and sometimes more compelling than quantitative data. Moreover, subtleties and complexities about research subjects and/or topic are discovered that are often missed by more quantitative inquiries. A recent example of this type of work is found in a recent qualitative study by Pobutsky and colleagues who investigated factors behind health disparities among Filipinos in Hawaii. The authors note that "there is a lack of information on what factors make Filipinos vulnerable to health disparities", and this commentary on Filipino health is representative of a broader lack of representation and information regarding such factors for AAHNPI populations in Hawaii and the continental United States (Pobutsky, Cuaresma, Kishaba, Noble, Leung, & Villaguerte, 2015).

The Present Study

We undertook a qualitative study to better understand health disparities affecting AANHPIs and potential ways in which to reduce these disparities, by interviewing academic and clinical pharmacists and other health professionals knowledgeable about these populations. We focused on pharmacists because, as drug experts, they are well positioned to perform wellness- and medication-related interventions to improve patient outcomes, and because an area of interest for this research was medication-related disparities. Pharmacists have a significant role to play in interdisciplinary health care teams in communicating with other health care professionals and with patients to reduce drug-related health care disparities (American Pharmacists Association Foundation and American Pharmacists Association, 2013; O'Connell, Korner, Rickles, & Sias, 2007). Pharmacist interventions have been shown to improve patient adherence and health outcomes (Morgado, Morgado, Mendes, Pereira, & Castelo-Branco, 2011). The pharmacists who were interviewed were in a unique position to provide key insights into the health status and disparities of AANHPI in Hawaii, because of their roles as academics and practicing clinical pharmacists with the University of Hawaii at Hilo Daniel K. Inouye College of Pharmacy (UHH DKICP). The DKICP is the only college of pharmacy in the state of Hawaii, and its faculty pharmacists are placed in-residence in hospitals and ambulatory care clinics throughout the state both in metropolitan and rural areas, where they are integrated into health care teams and work directly with AANHPI patient populations (Pezzuto, Ma, & Ma, 2015).

Previous studies that have been conducted to assess pharmacist perceptions of their roles in healthcare have shown that they have positive feelings about providing public health services,

but are less confident in their abilities to do this and in its importance compared to medicine related roles. Few studies have examined pharmacist perceptions of health disparities in AANHPI populations (Eade, Ferguson, & O'Carroll, 2011). One study conducted in New Zealand investigated pharmacists' baseline knowledge of health care disparities and surveyed their ideas on pharmacist participation reducing health disparities. Responses primarily focused on education, pharmacist-patient relationships, improved cultural competence, and pharmacist-patient communication (Aspden, Butler, Moore, & Sheridan, 2011). An Australian survey of pharmacist perceptions of Indigenous Australian health showed that pharmacists felt improved access to medicines, education, and teamwork with other health care professionals could improve Indigenous populations' use of medicines (Stoneman & Taylor, 2007). Both the New Zealand and Australian studies highlighted the need for cultural competence.

To our knowledge, our interviews and subsequent findings represent the first qualitative study to include pharmacists in order to examine their views on health care disparities in Hawaii, and notably, to assess their perceptions of factors behind these disparities. Goals of this study were to examine perceptions and factors affecting health disparities affecting AANHPIs and to identify the role of pharmacists, pharmacy schools, and the U.S. Food and Drug Administration (FDA) in reducing these disparities.

Methods

Participants

Purposive sampling was used to identify academic pharmacists working in Hawaii, a state with a uniquely diverse and dense AAHNPI population, and health professionals on the mainland United States with experience in working with AANHPIs from areas with large AANHPI populations (Oakland, CA; San Francisco, CA; Boston, MA; and New York, NY), as identified by the FDA Office of Minority Health. Of the 14 pharmacists from the University of Hawaii at Hilo College of Pharmacy who were approached, all agreed to be interviewed. Of the ten researchers from the continental US who were asked to participate via an email, four agreed to either be interviewed by phone or to respond to questions via email. Semi-structured interviews were conducted face-to-face, when possible, or via telephone.

Measures

Interview questions are included below. Analysis of transcribed data from interviews involved extracting basic categories by analyzing each response line by line. An inductive coding process was constructed using NVivo 10 (QSR International, Cambridge, MA) that enabled extraction of sections of text that related to codes that were uncovered through examination of transcripts. Codes were collapsed and merged to produce a manageable set of basic categories. Each basic category was named in order to summarize text sections succinctly and in a manner that differentiated it clearly from other categories.

- From your personal experience or through what you have heard or read, do you believe that there are gaps in health status of Asians and Pacific Islanders in comparison to other US populations? If so, in what areas and for which groups are there inequalities?
- What do you believe are some of the factors that are causing these inequalities?
- Are there gaps in knowledge regarding health inequalities affecting Asians and Pacific Islanders that would benefit from additional research, particularly in the area of appropriate medication use? If so, what type of research would be helpful?
- How might community pharmacists work to reduce disparities?
- How do you feel the College of Pharmacy can contribute to reducing disparities in appropriate medication use?

- What role, if any, do you think the FDA should play in reducing health inequalities and improving appropriate medication use?

To minimize the chance of error in coding and increase the reliability of the data, two researchers, one who had conducted the research and a second who did not collect data, coded responses independently. Discussion and consensus was reached related to systematic development of categories. The study was approved by University of Hawaii Institutional Review Board.

Results

Participant Characteristics

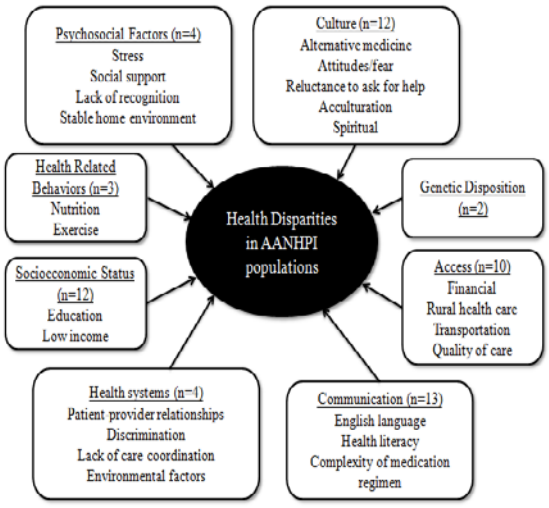
Fourteen participants were faculty or staff at the University of Hawaii at Hilo College of Pharmacy. The other four were from the US mainland. Half of the participants were male. Participants came from a variety of backgrounds and a wide range of experiences working with AANHPI populations, including retail pharmacy, clinical pharmacy, pharmacy administration, academia, research, and medical practice.

Factors Affecting Disparities

When asked about factors affecting disparities, frequent responses were poor communication, socioeconomic status, culture, and access to care (Figure 1).

Figure 1.

Pharmacist Perceptions of Factors Affecting Health Disparities.



Poor Communication. The most common response, mentioned by 13 of the 18 participants, was poor communication due to not speaking English fluently, low health literacy, and the complexity of medication regimens that some patients are prescribed. The responsibility of the physician and pharmacist to communicate important health information to their patients is made challenging when there is no shared language; likewise patients will struggle to understand complex health terms and regimens. Participants stated:

> "If you don't speak English, and a lot of our population here does not, then they're not even going to understand how to take the medication, let alone, how to be adherent to it."
> "Polypharmacy is challenging especially when English is not their first language, and follow up is very difficult."

Socioeconomic Status. Twelve participants pointed to socioeconomic status as a factor associated with health disparities for AANHPI groups. Some felt that socioeconomic status was the main factor behind disparities, rather than ethnicity. Participants stated:

> "I think the SE Asians, people from Vietnam, Thailand, Cambodia; they're probably the most unsupported ethnic groups among Asian groups. They tend to have low socioeconomic class level and education attainment."
> "Most of the Pacific population I've worked with, they do tend to be lower socioeconomic... But I think that it's more of a socioeconomic thing, not necessarily a Pacific Islander or Asian thing."

Culture. Twelve participants pointed to cultural causes including use of alternative medicine, attitudes and beliefs, reluctance to ask for help,

acculturation, and spirituality. One participant said:

> "With the Micronesians, it's fear. There's not a strong baseline understanding of health, for example they think that insulin is dangerous, they fear insulin for whatever reason."

Several participants expressed concern that use of alternative medicine might interfere with patients' medication adherence.

> "The medicinal plants that people are using from whatever their primary culture is, the things that they learned growing up from their grandparents, and that often has taken much more time to go through it than I would typically be aware of otherwise. And my sense is that that plays a role in medication adherence."

Access to Care. Ten participants stated that they felt access to care, in terms of financial access, the rural nature of health care, transportation, and access to quality care, impacted health disparities. Financial access is particularly a problem due to lower socioeconomic status of some AANHPI subgroups.

> "Of course, the 800-pound gorilla in the room is frequently being able to pay for medication."
> "Financial issues are probably the backbone of the problem…because even if it's a $1 copay, someone living on $693 a month will not be able to afford that."

The rural nature of health care delivery for many AANHPI patients in Hawaii was also mentioned.

> "I didn't even know (how much of a role) ethnicity or the cultural background plays… compared to just living rurally and how easy or hard is it to get access to health care let alone a prescriber a prescription and getting that medicine filled and taken as directed."

Other categories mentioned by participants were health-related behaviors, stress, genetic disposition, and system factors (Figure 1). System factors included discrimination, lack of social support, and lack of care coordination.

Reducing Disparities: Role of Community Pharmacists

While the majority of participants (15/18) felt that community pharmacists could impact health disparities, three participants said that they were unsure of what the role of a community pharmacist could be. The pharmacists who felt positively about community pharmacists' roles in reducing disparities made suggestions as to how they might be able to reduce gaps in health status affecting AANHPIs (Table 1). These included expanded consultation time, improved translation services, increased cultural awareness, and an increased focus on outcomes.

Table 1.

General Strategies to Reduce Health Disparities Among AANHPIs.

	Strategy
In general	Change reimbursement model for pharmacists to emphasize counseling
	Foster community involvement
	Focus on prevention of disease rather than treatment

> "(Community pharmacists) really need to kind of step away from the counter and get to know their patients, and there's been a big push, I think, in pharmacy to do that to get out of

> the fishbowl and actually talk to their patients."

One participant emphasized the importance of an increased focus on outcomes.

> "I am in the belief that we are sort of on the brink of, you know, community pharmacies are not going to be sort of the money makers that they have in the past, and they're going to have to show some outcomes on chronic diseases especially health disparities."

Reducing Disparities: Role of College of Pharmacy

All fourteen participants who were asked what the role of the University of Hawaii at Hilo Daniel K. Inouye College of Pharmacy could play in reducing disparities stated that the College could contribute to improving health care by educating pharmacy students to be clinically competent and culturally aware professionals (Table 1). They also felt that the College could spearhead progression in pharmaceutical care by collaborating with physicians and programs, and by continuing its community outreach efforts. The four participants who were unfamiliar with the Daniel K. Inouye College of Pharmacy were not asked to provide a response to this question.

> "(Emphasize) that the more important aspects of practice of pharmacy is patient focused care. That everything should revolve around the patient, and if you don't interact with the patient, then you're not really helping them."
>
> "We have students with intimate knowledge of some of these populations…I think we need to leverage those student resources by funding projects that will work to screen. But, we need to take a step further than screening and collaborate with nurse practitioners, doctors, PAs, somebody with prescribing authority or develop a collaborative practice agreement with a pharmacy faculty staff."

Reducing Disparities: Role of the U.S. Food and Drug Administration (FDA)

When asked what role the FDA should play in reducing disparities, responses were mixed. Ten participants identified potentials roles for the FDA in reducing disparities. One participant said the FDA should consider medication adherence:

> "…[The FDA] should be approving medications are going to help with medication adherence. Whether it's through appropriate dosing and dosing times…approving me-too drugs that may end up costing the patient less or improving their ability to adhere to medication."

In contrast, three participants felt the FDA really did not have a large role, and four participants were uncertain of whether the FDA should play a role, stating:

> "The FDA may be able to play a role in making drug therapy more accessible, also maybe not. I think that's more of a political question than a regulatory question. They're a regulatory agency."
>
> "I think it's a noble idea. I wouldn't say that they shouldn't, but I would be surprised to hear that they had a lot of efforts to do stuff."

Three participants others pointed out the need to encourage research involving AANHPIs to a greater extent:

> "…require more ethnicities, more ethnic background to be involved in clinical research, trials, that might be a way that clinicians can convince our

> minority population or subgroups…to accept and agree that these medications will help them."

Aiding with translation of materials for AANHPIs was also mentioned by one participant as a potential role for the FDA:

> "…putting patient information pamphlets in different Pacific Island languages. I think that Marshallese, Chuukese, Yap, these are the languages. That might be one good way the FDA could help."

Discussion

Hawaii has a large and diverse AANHPI community, with significant gaps in health status. Our findings from interviews with academic pharmacists and health care professionals familiar with the role of pharmacists and with the needs of AANHPI populations provided insights into avenues through which disparities can be addressed. These insights are valuable given the evolution of the role of pharmacists in health care (Kenreigh & Wagner, 2006).

While a major focus of our interviews were centered around medication-related health care disparities, it became clear that our participants felt that there were larger factors which were the cause of many disparities. Health care professionals in our study felt that the top three categories of factors affecting health disparities for AANHPIs were communication, socioeconomic status and culture. In terms of communication, participants focused on limited English language proficiency as a barrier. This has been cited by others as the 'lowest common denominator of cultural sensitivity' and a barrier to optimal health care (Rogler, Malgady, Costantino, & Blumenthal, 1987). Participants suggested that translation, for both oral and printed materials, was an important aspect of health care communication in retail and clinical pharmacy settings.

Participants also felt that socioeconomic status was one of the most important factors behind health care disparities. Several participants felt that its impact was so great that socioeconomic status, rather than ethnicity, was a prevailing factor behind gaps in health care. While the impact of socioeconomic status on health status is well known, it is also often an "ignored determinant of the nation's health" (Isaacs & Schroeder, 2004). Though deemed to be extremely important, a detailed discussion of how to address economic inequality was beyond the scope of this study.

The impact of culture was seen to have a significant impact on patients' ability to understand medication use, their attitudes towards Western medicines, and their willingness to seek help from health care professionals (Kreuter & McClure, 2004). Cultural competency, a known issue in healthcare, was highlighted as a necessary aspect of care provided by pharmacists and other health care professionals (Hirano, 2012). Despite reports from the Institute of Medicine (IOM) highlighting cultural competency training as a means of addressing racial and ethnic disparities in care, a survey of resident physicians reported that less than half felt "well-prepared" or "very well-prepared" to treat patients from diverse cultures (Weissman, Betancourt, Campbell, Park, Kim, Clarridge, et al., 2005). Hence, while pharmacy schools offer training in cultural competency, more continuing education may be needed for community pharmacists, relating to specific populations. Current Accreditation Council for Pharmacy Education (ACPE) standards require pharmacy programs to ensure that the curriculum addresses patient safety, cultural appreciation, health literacy, and health care disparities (Accreditation Council for Pharmacy Education, 2011).

Participants felt that pharmacists are well-positioned to address the needs of AANHPI patients as accessible health care professionals and pharmacotherapy experts, particularly by being effective educators to patients. However, participants felt that the demands of retail pharmacy responsibilities often created a barrier to patient education due to the time constraints

imposed by the burden of filling prescriptions. Participants felt that the role of a pharmacist has been expanding and will continue to evolve in the future to include more patient- and outcome-focused efforts. These sentiments have been shared by others in the literature (Hilsenrath, Woelfel, Shek, & Ordanza, 2012; Law, Okamoto, & Brock, 2009; Twigg, Poland, Bhattacharya, Desborough, & Wright, 2012). Presently, there is a lack of data describing pharmacists' abilities to address health literacy gaps, and this area merits research as patients rely on pharmacists to provide them with information necessary to the safe and effective use of their medications (Tkacz, Metzger, & Pruchnicki, 2008).

Most participants felt the College of Pharmacy should continue to support student participation in community service events, such as health fairs, to encourage patient-centered care, and to advocate for policies that promote high quality pharmaceutical care.

In regard to the role of the FDA, several participants felt the FDA may be able to improve enrollment of AANHPIs into clinical trials, as there is a lack of information on Asian American responses to medications and dosing standards may not be appropriate to Asian Americans due to their smaller size on average. These concerns echo a recent article which asserted that recruitment of minorities and adequate representation in clinical trials is vital to closing health care gaps (Brown, Lee, Schoffman, King, Crawley, & Kiernan, 2012). Others felt the FDA could help with translation patient information into Pacific Islander languages and funding investigators in health disparities research.

Our findings provide evidence that pharmacists in Hawaii felt similarly to the pharmacists in Australia and New Zealand regarding the importance of patient education in addressing health disparities for Indigenous Australian and Maori populations. Similarly to the pharmacist participants in the Australian survey, our participants expressed a concern that time constraints imposed by their primary roles would limit their ability to participate in activities that could address health care disparities (Eade, Ferguson, & O'Carroll, 2011; Aspden, Butler, Moore, & Sheridan, 2011).

Of note, an article published in 2012 by faculty from the UNC Eshelman School of Pharmacy noted that less than 3% of accredited pharmacy colleges and schools are promoting and providing formal curricular programming in rural pharmacy health, citing the need for qualified pharmacy practitioners in rural areas (Joyner, O'Connor, Thrasher, & Blouin, 2012). It is for this very reason that the University of Hawaii chose to place the DKICP in a rural area on the island of Hawaii, as opposed to a more urban center in Honolulu on the island of Oahu. A recently published article by the Dean of the DKICP noted that "Most recent data that describes the desperate shortage of health care professionals in rural Hawai'i justifies the [rural] placement of our program" (Pezzuto, Ma, & Ma, 2015).

Limitations

There are some limitations in this study that should be mentioned. As only one interviewer collected the data, research quality may be influenced by the researcher's personal biases. We attempted to lessen any impact by transcribing the data and having another researcher independently code and compare results. Moreover, as our interviews were primarily focused on health care providers, further research is needed to gain an understanding of the patient perspective of the role of pharmacists, pharmacy schools, and the FDA in improving the health of vulnerable populations.

Conclusion

Despite these limitations, our study adds to the literature in that it explores an understudied area involving pharmacist and other health care professionals' perceptions of health disparities and ways in which they might be reduced. As many of the disparities are in chronic conditions and appropriate medication use is a key component of improved health status, we believe the insights gained from our interviews will help to target interventions to address health

disparities. Increased health data collection, reporting, and dissemination for the AANHPIs, along with greater inclusion in research studies examining effective interventions, needs to be a priority if we are to reduce gaps in health status for AANHPIs.

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References

Accreditation Council for Pharmacy Education. Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree: Guidelines Version 2.0 (2011). Retrieved April 30, 2015 from https://www.acpe-accredit.org/pdf/FinalS2007Guidelines2.0.pdf.

American Pharmacists Association Foundation and American Pharmacists Association (2013). Consortium recommendations for advancing pharmacists' patient care services and collaborative practice agreements. *Journal of the American Pharmacists Association* (2003), *53*(2), e132-41.

Aspden, T., Butler, C., Moore, B., & Sheridan, J. (2011). New Zealand health disparities-pharmacists' knowledge gaps and training needs. *Journal of Primary Health Care*, *1*;(3), 192-196.

Brown, S. D., Lee, K., Schoffman, D. E., King, A. C., Crawley, L. M., & Kiernan, M. (2012). Minority recruitment into clinical trials: experimental findings and practical implications. *Contemporary Clinical Trials*, *33*(4), 620-623.

Centers for Disease Control and Prevention. Native Hawaiian & Other Pacific Islander Populations (2013). Retrieved April 30, 2015 from http://www.cdc.gov/minorityhealth/populations/REMP/nhopi.html.

Dachs, G. U., Currie, M. J., McKenzie, F., Jeffreys, M., Cox, B., Foliaki, S., Le Marchand, L., et al. (2008). Cancer disparities in indigenous Polynesian populations: Māori, Native Hawaiians, and Pacific people. *Lancet Oncology*, *9*(5), 473-484.

Eades, C. E., Ferguson, J. S., & O'Carroll, R. E. (2011). Public health in community pharmacy: a systematic review of pharmacist and consumer views. *BMC Public Health*, *21* (11), 582-594.

Flores, G. & Lin, H. (2013). Trends in racial/ethnic disparities in medical and oral health, access to care, and use of services in US children: has anything changed over the years? *International Journal for Equity in Health*, *12*(10), 1-16.

Harrigan, R. C., Easa, D., LeSaux, C., Millar, L., Kagihara, L.E., & Shoemaker T. S. (2005). Oral Health Disparities and Periodontal Disease in Asian and Pacific Islander Populations. *Ethnicity and Disease*, *15*(4 Suppl 5), S5–39-46.

Hilsenrath, P., Woelfel, J., Shek, A., & Ordanza, K. (2012). Redefining the role of the pharmacist: medication therapy management. *The Journal of Rural Health*, *28*(4), 425-430.

Hirano, D. M. (2012). Asian American health research: what community agencies on the front line need to know. *Progress in Community Health Partnerships*, *6*(1), 59-64.

Isaacs, S. L., & Schroeder, S. A. (2004). Class—the ignored determinant of the nation's health. *The New England Journal of Medicine*, *351*(11), 1137–1142.

Joyner, P. U., O'Connor, S. K., Thrasher, K. A., & Blouin, R. A. (2012). Addressing rural health disparities through pharmacy curricula. *American Journal of Pharmaceutical Education*, *76*(10),1-3.

Kenreigh, C. A. & Wagner, L. T. (2006). Pharmacists' role in healthcare still evolving. *Medscape Pharmacists*, *8*(2), 1–4.

Kreuter, M. W. & McClure, S. M. (2004). The role of culture in health communication. *Annual Review of Public Health, 25*, 439-455.

Law, A. V., Okamoto, M. P., & Brock, K. (2009). Ready, willing, and able to provide MTM services?: A survey of community pharmacists in the USA. *Research in Social & Administrative Pharmacy, 5*(4), 376-381.

Manias, E. & Williams, A. (2010). Medication adherence in people of culturally and linguistically diverse backgrounds: a meta-analysis. *The Annals of Pharmacotherapy, 44*, 964-982.

Mau, M. K., Sinclair, K., Saito, E. P., Baumhofer, K. N., & Kaholokula, J. K. (2009). Cardiometabolic health disparities in native Hawaiians and other Pacific Islanders. *Epidemiologic Reviews, 31*, 113-129.

Morgado, M. P., Morgado, S. R., Mendes, L. C., Pereira, L. J., & Castelo-Branco, M.(2011). Pharmacist interventions to enhance blood pressure control and adherence to antihypertensive therapy: Review and meta-analysis. *American Journal of Health-System Pharmacy, 68*(3), 241-253.

Moy, K. L., Sallis, J. F., & David, K. J. (2010). Health Indicators of Native Hawaiian and Pacific Islanders in the United States. *Journal of Community Health, 35*, 81–92.

O'Connell, M. B., Korner, E. J., Rickles, N. M., & Sias, J. J. (2007). Cultural competence in health care and its implications for pharmacy. Part 1. Overview of key concepts in multicultural health care. *Pharmacotherapy*, *27*(7), 1062-1079.

Pezzuto, J. M., Ma, C. S., & Ma, C. (2015). The Daniel K. Inouye College of Pharmacy Scripts: Academic Pharmacy Strikes Hawai'i (Part 2). *Hawaii Journal of Medicine and Public Health, 74*(3), 120-128.

Pobutsky, A., Cuaresma, C., Kishaba, G., Noble, C., Leung, E., & Villafuerte, A. (2015). The Social, Cultural and Behavioral Determinants of Health among Hawaii Filipinos: The Filipino Healthy Communities Project. *Californian Journal of Health Promotion, 13*(1), 1-12.

Ro, M. J., & Yee A. K. (2010). Out of the shadows: Asian Americans, Native Hawaiians, and Pacific Islanders. *American Journal of Public Health, 100*(5), 776-778.

Rogler, L. H., Malgady, R. G., Costantino, G., & Blumenthal, R. (1987). What do culturally sensitive mental health services mean? The case of Hispanics. *The American Psychologist, 42*(6), 565-570.

Simpson, S. H., Eurich, D. T., Majumdar, S. R., Padwal, R. S., Tsuyuki, R. T., Varney, J., et al. (2006). A meta-analysis of the association between adherence to drug therapy and mortality. *BMJ, 333*(7557), 1-6.

Stoneman, J. & Taylor, S. J. (2007). Pharmacists' views on Indigenous health: is there more that can be done? *Rural Remote Health, 7*(3), 1-16.

Tkacz, V. L., Metzger, A., & Pruchnicki, M. C. (2008). Health literacy in pharmacy. *American Journal of Health-Systems Pharmacists, 65*(10), 974-981.

Twigg, M. J., Poland, F., Bhattacharya, D., Desborough, J. A., & Wright, D. J. (2013). The current and future roles of community pharmacists: Views and experiences of patients with type 2 diabetes. *Research in Social and Administrative Pharmacy, 9*(6), 777-789.

U.S. Census Bureau. (2012). The Asian Population: 2010. Retrieved June 3, 2015 from https://www.census.gov/prod/cen2010/briefs/c2010br-11.pdf.

U.S. Census Bureau. (2012). The Native Hawaiian and Other Pacific Islander Population: 2010. Retrieved June 3, 2015 from https://www.census.gov/prod/cen2010/briefs/c2010br-12.pdf.

Weir R. C., Tseng W., Yen I. H., & Caballero J. (2009). Primary health –care delivery gaps among medically underserved Asian American and Pacific Islander Populations. *Public Health Reports.124,* 831-840.

Weissman, J. S., Betancourt, J., Campbell, E. G., Park, E. R., Kim, M., Clarridge, B., et al. (2005). Resident Physicians' Preparedness to Provide Cross-Cultural Care. *JAMA, 294*(9), 1058-1067.

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